

SELECT COMMITTEE ON  
SCIENCE AND TECHNOLOGY

**SCIENCE IN SCHOOLS:  
Government Responses**

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## SELECT COMMITTEE ON SCIENCE & TECHNOLOGY

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**NOTE**

This document is the Second Report in the Session 2001-02 by the Select Committee appointed to consider Science and Technology. It was ordered to be printed on 27 November 2001, and published shortly thereafter.

# SCIENCE IN SCHOOLS: Government Responses

Second Report Session 2001-02

by the House of Lords Select Committee on Science and Technology

1. In March we issued a short report on *Science in Schools* (First Report 2000–01, HL Paper 49), drawing attention to the importance of science teaching in schools and the need to support school science teachers with Continuing Professional Development. The Government responded with a note, which is printed as Appendix 2.
2. The Government have supplemented this response with a further note, which is printed as Appendix 3. This conveys the welcome news that they are to set up a National Centre for Excellence in Science Teaching, as recommended by their own Council for Science and Technology in their report *Science Teachers* of February 2000 (para 113) and in our report (para 30). We look forward to seeing the new Centre up and running soon.

## APPENDIX 1: Members of the Select Committee

Lord Flowers (*co-opted*)  
Lord Haskel  
Lord Lewis of Newnham  
Lord McColl of Dulwich  
Lord Methuen  
Lord Oxburgh (*Chairman*)  
Lord Patel  
Lord Quirk  
Lord Rea  
Lord Soulsby of Swaffham Prior  
Lord Turnberg  
Lord Wade of Chorlton  
Baroness Walmsley  
Baroness Warwick of Undercliffe  
Baroness Wilcox

Members declared the following interests.

Lord Lewis of Newnham..... Chairman of Governors, the Leys School, Cambridge

Lord Quirk..... Trustee of the Wolfson Foundation (on the Educational Panel)

Baroness Wilcox ..... Governor of St Mary's Convent School, Wantage



## APPENDIX 2: Government Response April 2001

### SELECT COMMITTEE ON SCIENCE AND TECHNOLOGY REPORT ON SCIENCE IN SCHOOLS: GOVERNMENT RESPONSE

The Select Committee's recommendations are in bold text.

The Government's response is in plain text.

#### **1. Continuing Professional Development (CPD) for teachers should be linked to a clear development structure at all levels of the profession with tangible benefits for teachers who successfully complete CPD courses.**

Continuing Professional Development is an essential component of our agenda to raise standards of teaching and learning. The performance management system sets a framework for all teachers to agree and review priorities and objectives within the context of the school's development plan and their own professional needs. It means making available appropriate and effective professional development to teachers to ensure a high level of expertise and progression in their career. In addition the new system will provide a stronger link between teachers undertaking professional development activities and teachers evaluating the impact of such activities on their teaching.

There are a series of standards to which teachers aspire throughout their career starting with the standards for Newly Qualified Teachers and for Induction. These standards are currently being mapped against specific dimensions of teaching and learning and will be set out in a Standards Framework to be published later this year. In addition we will be providing further support at key points in teachers' careers; in September a pilot for Early Professional Development for teachers in their second and third years of teaching will begin and the National College of School Leadership will be developing training for teachers with subject and specialist leadership responsibilities in 2002.

These are all part of our new strategy for professional development 'Learning and Teaching', which was launched on 1 March 2001<sup>1</sup>. The strategy is designed to give teachers greatly increased opportunities for relevant, focused, effective professional development throughout their careers, and to place professional development at the heart of school improvement. Our commitment to this strategy demonstrates our strong belief that CPD can bring tangible benefits for both teachers and their pupils.

We know from talking to schools that a commitment to the development of every member of staff—teachers and support staff—frequently leads to the creation of an open, supportive and collaborative culture across the school; greater self-esteem, self confidence and enthusiasm; better quality teaching; a real desire amongst staff to continue learning; and a substantially greater capacity in the school as a whole for continuous self-improvement.

#### **2. Those who teach science, and particularly those who teach beyond the scope of their degree, should be given priority in the development of CPD policy.**

The science strand of the Key Stage 3 strategy, which is currently being piloted in 17 LEAs, will provide focused professional development for Key Stage 3 science teachers in both subject knowledge and pedagogical skills as a means of raising standards for 11–14 year olds. The training programmes will be supported by high quality training material. These will be refined in the light of our experience and that of schools and LEAs before national implementation of the science strand, which is planned for 2002/03. The training

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<sup>1</sup> See [http://www.dfes.gov.uk/teachers/cpd/docs/CPD\\_Strategy.pdf](http://www.dfes.gov.uk/teachers/cpd/docs/CPD_Strategy.pdf)



programme currently being piloted will support teachers in improving their subject knowledge in their own particular discipline and also enable them to teach more effectively in other areas of science. Schools in the pilot have been asked to complete an audit as an initial step. This, in addition to providing a picture for whole departments, will identify the developmental needs of individual teachers and will help determine what action should be taken to address these.

Through our CPD strategy we are supporting all teachers to become reflective practitioners who actively seek and adopt new teaching strategies and approaches to raise standards in the classroom. A science teacher who identifies a need to develop their subject knowledge will select the most appropriate professional development activity to enable them to do this.

### **3. For CPD to be effective, regular time must be formally allocated to subject-specific development.**

We believe that the wide-ranging needs of individual teachers are best met by a flexible, non-prescriptive approach and we are currently researching how teachers can make the best use of the time available to them for CPD.

In addition, we have significantly increased the funding available to support teachers' professional development and have also given schools much more flexibility in how they can use the Standards fund, which will help them to pursue their school's development priorities and support the performance management process. Headteachers have been strongly encouraged to use this flexibility to make professional development a priority.

Teachers' contracts provide for five non-contact days in the school year. Individual schools will decide how to use this time most effectively to best meet the needs of their staff and pupils, including whether to devote time to subject specific development.

### **4. The high cost of teacher turnover should be taken into greater account when allocating money for the provision of CPD.**

We agree that regular opportunities for teachers to pursue their personal and professional development will make it easier to attract good graduates into teaching and retain them. Our ambitious and long term CPD strategy is designed to support teachers in bringing about a transformation in the culture of professional development across the profession. We plan to monitor and evaluate the impact of the strategy so that we are able to track our progress and assess the cost effectiveness of different initiatives.

### **5. The DfEE<sup>2</sup> should, as a matter of some urgency, collect and analyse data on why so many teachers leave the profession.**

We have already taken account of research carried out by others into the reasons that people choose to enter teaching, the influences on teacher morale and job satisfaction and factors affecting why teachers leave the profession.

As part of the Department's research programme for 2001/02, we intend to carry out a project which will build on previous research and aim to establish the reasons teachers leave the profession, their destinations, their prospects for returning to teaching and what might be done to keep them in the profession. The research will explore factors relating to motivation and job satisfaction, such as training, support, pay and conditions of service. However, evidence already shows that schools with strong cultures of CPD find it easier to recruit and retain staff.

<sup>2</sup> The education and training responsibilities of the Department for Education and Employment (DfEE) were transferred to the new Department for Education and Skills (DfES) in June 2001.



**6. The Government should fund an independent national body to validate materials and products for CPD, and to monitor their implementation and effectiveness.**

We do not believe that this is a cost effective use of resources. Teachers are able to use their professional knowledge to determine which materials they will find most effective. In addition, the Code of Practice for Providers of Professional Development, launched on 1 March 2001 as part of the CPD Strategy, provides schools with a clear statement of what they are entitled to expect from external organisations providing learning and development services, and guidance on how to secure it.

We believe that supporting schools to make informed decisions based on their own individual needs is the most appropriate way to deliver high quality professional development to teachers.

**7. The implementation of CPD through ICT should not be promoted to the exclusion of improving more traditional resources.**

High quality focused professional development can be delivered in a number of ways, including through ICT. The advantages of ICT include that it allows interactive learning; enables teachers to network and share good practice both locally, nationally and internationally; and is flexible so that individuals can access the learning materials when and where they want.

It is important that, when teachers identify their own professional development needs, they can choose a learning method best suited to their individual learning style. Teachers tell us that some of the most valuable professional development takes place in their own schools when they have the opportunity to learn from and with other teachers and we believe that there is real value in thinking first about creating these types of opportunities. Individual teachers will decide if they wish to use ICT as part of this.

Professional development within national initiatives, such as the Key Stage 3 strategy for raising standards, uses a range of different methods of delivery. For example, within the Key Stage 3 science pilot, resources available for schools include training and in-school support from consultants; sharing practice with local schools; and both paper and ICT based learning materials.

**8. Science-specific CPD should be available to primary school teachers, to encourage them to understand and promote science in the earliest years of a child's education. The value of inspirational teaching at this stage cannot be overemphasised.**

Performance in primary science is outstanding. Since 1997 the proportion of pupils achieving national expectations has increased from 69 per cent to 85 per cent. In addition, Ofsted has highlighted that the national literacy and numeracy strategies have led to clear benefits in other subjects, including science.

To maintain this level of pupil performance, teachers may need opportunities to reflect on their science teaching. This could take place in school or be facilitated by the range of providers that deliver science specific CPD to primary school teachers. Teachers and their schools will determine their own priorities in terms of professional development and will decide whether a focus on science is needed.

In addition, we know of a number of secondary science Advanced Skills Teachers who are already doing effective outreach work in primary schools. We are significantly expanding the number of Advanced Skills Teachers over this coming year and want to encourage more of this type of outreach.

**9. CPD should be specifically targeted at the problem of declining practical work, to give teachers the knowledge and the confidence to enable children to carry out good hands-on science without incurring significant risk.**

We have no evidence that practical work in schools is declining. The evidence that we do have (Third International Mathematics and Science Study Re-run, published in December 2000) shows that pupils in England do more practical work than their counterparts in many other countries. The importance of scientific enquiry has been further emphasised by recent changes to national curriculum. Well-taught practical work, including demonstration, group work and individual investigation, is an essential and valuable part of every child's science education.

If individual teachers or schools identify a need for further development in delivering safe and effective practical work, there are a range of providers who offer this as well as the expertise within their own and neighbouring schools on which they can draw.

*Rt Hon Estelle Morris MP*

*Minister of State*

*Department for Education and Employment*

*25 April 2001*



## APPENDIX 3: Government Response September 2001

### CENTRE FOR EXCELLENCE IN SCIENCE TEACHING

Further to the Government's response of 25 April 2001 to the Committee's report on *Science in Schools*, we are pleased to update the Committee on our manifesto commitment to, with charitable and corporate involvement, establish a National Centre for Excellence in Science Teaching to promote best practice.

This commitment followed on from the recommendations of the Council for Science and Technology's report *Science Teachers: A report on Supporting and Developing the Profession of Science Teaching in Primary and Secondary Schools* and the Committee's own report on *Science in Schools*.

It sits alongside a wide range of other DfES-led activity to support school science education. For example, science year runs for the academic year 2001/2002; the science strand of the Key Stage 3 strategy will roll out nationally from September 2002 offering focused professional development for Key Stage 3 science teachers; the first science specialist schools will open in 2002; there are 89 primary and 93 secondary schools with beacon status in science; there are over 100 science Advanced Skills Teachers; and science teachers also benefit from wider programmes such as the overarching CPD strategy; recruitment and retention initiatives; and investment in ICT. A range of other organisations and institutions also provide support for science teachers, including professional development opportunities.

To ensure that the Centre for Excellence in Science Teaching both complements this wider activity and is shaped by the needs of the science teachers who will use it, DfES has commissioned an exploratory study, which will be completed in October 2001.

The overall aim of the centre is to develop teaching and learning in science so that young people are encouraged to succeed, to become confident and informed users and consumers of science and have a secure base from which to pursue scientific study or employment. With this in mind, the exploratory study is sampling the views of a range of stakeholders, including science teachers, continuing professional development (CPD) providers and professional institutions. The study focuses on the activities and support the Centre should provide, how this might complement and enhance the work of other CPD providers, and how the Centre should operate in order to maximise uptake by science teachers.

The Committee's recommendation in its report *Science in Schools* that *the Government should fund an independent national body to validate materials and products for CPD, and to monitor their implementation and effectiveness* is a role that could be carried out by the Centre for Excellence and this is being looked at in more detail through the exploratory study.

The exploratory study will provide us with a basis from which to develop focused proposals for the Centre for Excellence in Science Teaching, offering an appropriate range of options for a formal consultation. This consultation will gather a wider range of views and include stakeholders, such as industry, that are not involved in the exploratory study. We are, in parallel, looking at the costs associated with the establishment of the centre and identifying potential sources of funding.

*Baroness Ashton of Upholland*  
*Parliamentary Under Secretary of State for*  
*Early Years and School Standards*  
*Department for Education and Skills*

*21 September 2001*













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